

REMARKS

Claim 14 has been amended to delete mannitol and cellobiose from the list of one or more compounds recited as an element of the claim. Claim 14 has also been amended to delete the recitation that the compound is low metabolizable.

Claims 23-31 have been added. The new claims separately recite the "one or more compounds" listed in claim 14.

It is respectfully submitted that the present amendment presents no new issues or new matter and places this case in condition for allowance. Reconsideration of the application in view of the above amendments and the following remarks is requested.

I. The Rejection of Claims 14-22 under 35 U.S.C. 112 (Written Description)

Claims 14-22 are rejected under 35 U.S.C. 112, as allegedly not meeting the written description requirement. The Examiner alleges that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that Applicants were in possession of the claimed invention at the time of filing. In particular, the Examiner alleges that: "Because the claims encompass a multitude of Genus, species and enzymes neither contemplated nor disclosed by the as-filed disclosure, it is clear that applicant was not in possession of the full scope of the claimed subject matter at the time of filing."

This rejection is respectfully traversed. The Examiner's allegation that the as-filed disclosure did not contemplate or disclose the multitude of Genus, species and enzymes is misplaced. The specification describes that the present invention is directed to the discovery that a polypeptide of interest can be prevented from crystallizing or precipitating during fermentation by adding a carbohydrate, polyol or derivative thereof to the culture medium during fermentation. The specification clearly discloses that the claimed invention is applicable to bacterium as a genus, and the specification provides many examples of suitable species of bacterium. See the specification at page 1, lines 28-34 and at page 2, lines 19-24. The specification also clearly discloses that the claimed invention can be applied to prevent the crystallization/precipitation of polypeptides as a genus, preferably enzymes, and includes examples of many species of enzymes. See the specification at page 1, lines 22-25 and page 3, lines 25 to page 5, lines 23. Hence, Applicants have both contemplated and described that the claimed invention is applicable to bacterium in general and to enzymes in general, and has provided numerous species as examples.

Moreover, the examples provide an actual reduction to practice and show that the invention works as described. Clearly, an artisan would conclude that applicants were in possession of the invention as applied to bacterium in general and to any enzyme based on this actual reduction to practice and the description provided in the specification. Applicants are not required to provide a detailed example of each and every embodiment to demonstrate possession of the invention.

The Examiner refers to the fact that there are variations between bacterium and enzymes, however, these variations do not establish that an artisan would conclude that Applicants were not in possession of the invention. In fact, the specification provides a written description which is more than adequate to show that Applicants had possession of the invention of fermenting all bacterium in the production of enzymes in general. Thus, based on the specification, an artisan would reasonably conclude that applicants were in possession of the claimed invention.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

II. The Rejection of Claims 14-22 under 35 U.S.C. 112 (Indefiniteness)

Claims 14-22 are rejected under 35 U.S.C. 112 as allegedly indefinite on the basis that the phrase "wherein the compound is low metabolizable measured by $(OD3-OD2)/(OD1-OD2) < 25\%$ " is unclear.

In order to expedite prosecution the claims have been amended to delete this phrase.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

III. The Rejection of Claims 14-22 under 35 U.S.C. 102(b)

Claims 14-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Brothers et al. The Examiner states that Brothers et al. discloses a process for the recovery of enzymes (including protease and alpha-amylase) obtained from a fermentation medium from a microorganism of interest, including by the addition of polyol solvent to the fermentation medium to solubilize and recover the enzyme.

Brothers et al. does not anticipate the claimed invention. Brothers et al. is directed to a recovery process in which the polyols are added after fermentation. In particular, the polyol solvent is circulated through the cake after fermentation and concentration. See Brothers et al. at, e.g., Col. 2, lines 10-28 and Col. 5, lines 21-30. Thus, Brothers et al. does not anticipate the claimed invention as it does not teach the step of: adding one or more of the recited compounds to the culture medium before and/or during fermentation.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 102(b). Applicants respectfully request reconsideration and withdrawal of the rejection.

IV. The Rejection of Claims 14-22 under 35 U.S.C. 103

Claims 14-22 are rejected under 35 U.S.C. 103 as obvious over Brothers et al. in view of Schreiber and GB 10001173 and Boyer et al. This rejection is respectfully traversed.

As previously discussed, Brothers et al. does not disclose the process of the present invention, as Brothers does not teach adding one or more of the recited compounds to the culture medium before and/or during fermentation.

Schreiber also discloses a process for recovery of proteins, and involving adding polyoxyethylene glycol after fermentation.

GB 1001173 is directed to a process of production of a galactose oxidase from a fungus (*Polyporus circinatus* Fr.).

Boyer et al. is directed to production of an alkaline *Bacillus* protease, in which suitable carbon sources are indicated as glucose, mannose, fructose, mannitol, maltose, cellobiose, sucrose, dextrin, starch, hydrolyzed starch, molasses, etc.

None of the cited reference teach or suggest, alone or in combination, adding 1,2-propandiol, 1,3-propandiol, ethylene glycol, trehalose, xylitol, arabitol, dulcitol, , erythritol, sorbitol and a polyether having an average molecular weight less than 1000 to the culture medium before and/or during fermentation in a process of fermenting a bacterium for an enzyme of interest.


For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

V. Conclusion

In view of the above, it is respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

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